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LABORATORY BULLETIN

MONTANA STATE DEPARTMENT OF HEALTH
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EXAMINATIONS FOR MALARIA PARASITES

Malaria in the United States in 1967-68 was characterized by an increase in imported cases and an increase in the number of cases of transfusion malaria. For 1967 a total of 2,815 cases was reported as compared with 678 cases in 1966 and 156 cases in 1965. All but 186 cases had acquired their infection in Viet Nam. Plasmodium vivax accounted for 81 per cent of the cases and P. falciparum was identified in 13 per cent of the cases. In 80 per cent onset of illness occurred more than 30 days after arrival in the U.S., while 26 cases experienced their first symptoms more than one year after their return. It is expected that this problem will increase even further soon. Of the 2,815 cases, 218 were diagnosed by physicians in private practice and, with more rapid separation of military personnel, the percentage of cases seen by physicians will increase.

Because of this prospect, one of our microbiologists attended a workshop, sponsored by the National Communicable Disease Center, on the laboratory diagnosis of malaria. Special emphasis was placed on gaining proficiency in differential diagnosis of the four species of parasites causing human malaria. Now we are ready to assist physicians in confirming malaria by examination of smears in the state laboratory.

Blood smears for malaria: It is important that blood should be taken at the proper time and in the proper manner. Smears of peripheral blood should be taken on the day between chills so species identification can be made of any parasites present. If P. falciparum is suspected, smears should be taken every 5 - 6 hours. In a highly suspicious case, smears should be repeated four times or more at appropriate intervals before it is dismissed as being negative for malaria. Each specimen should consist of two thick and two thin smears. Thin smears are made in the same manner as for blood cell morphology. Thick smears are made by placing a drop of blood on the slide and spreading it around so that the smear is approximately the size of a dime and thin enough for newspaper to be legible through it. Allow the smears to dry on a flat surface and send to the state laboratory unstained.

One of the problems in transfusion-acquired malaria has been the donor who is an asymptomatic carrier of plasmodia. In each instance the donor has given a history of being in a malarious region. P. malariae infections may persist throughout life but there have also been such cases due to P. falciparum. Another problem is illustrated by the following occurrence in Alabama. Four teenagers developed malaria due to P. vivax infection following attendance at a drive-in theater. Anopheline mosquitoes were prevalent and it was postulated that the donor of the parasites may have been a foreign student at a nearby university or a soldier who had returned from South East Asia to an adjacent military base. A similar episode was reported from California and the source of infection was a soldier who slept outdoors near a camp. The average incubation period in the Alabama incident was 14 days.

Some of the P. falciparum infections have terminated fatally.

